

## ABSTRACT

A fractal structure is formed to have a plurality of regions different in fractal dimension characterizing the self-similarity. The fractal structure is grown from one or more origins under growth conditions providing a first fractal dimension in a first portion of the growth process from the start point of time to a first point of time, and under growth conditions providing a second fractal dimension lower than the first fractal dimension in another portion of the growth process from the first point of time to a second point of time. By adjusting the timing for changing the growth conditions, the fractal structure is controlled in nature of phase transition, such as critical temperature for ferromagnetic phase transition, which occurs in the fractal structure. For enhancing the controllability, the first fractal dimension is preferably larger than 2.7 and the second fractal dimension is preferably smaller than 2.3.